Security Access Based on Facial Features

A card based security system determines security access by comparing the facial features of the card owner with the facial features of an applicant that is requesting access to a secure item. The facial features of an authorized card owner are stored in a medium of a security access card in the form of feature data. When an applicant presents the card for access, the card feature data is read from the card medium and compared to applicant's facial feature. The facial features of the applicant are determined by taking a picture, and generating applicant feature data that is similar in format to the card feature data. The card feature data is compared to the applicant feature data to determine a level of agreement. The applicant is granted security access if the agreement is above a threshold, and the applicant is denied access if the agreement is below a threshold. In an alternate embodiment, the card medium does not carry the feature data of the card owner. Instead the card medium carries an ID code that identifies the card owner, and the feature data of card owner is retrieved from a computer memory that catalogs the feature data using the ID code. In embodiments of the invention, the feature data represents normalized ratios of distances between face features of the person characterized by the feature data. The normalized ratios are sufficient to adequately represent a person's face for security access purposes. Exemplary ratios include the forehead-to-chin distance, nostril-to-nostril distance, and ear-to-ear distance, where the normalization factor is the eye-to-eye separation of the person. In embodiments of the invention, the card medium that holds the feature data or ID code is a magnetic medium. In an alternate embodiment, the card medium is a bar code. In a preferred embodiment, the card medium is a two dimensional bar code, such as PDF417. Commercially available 2-D bar codes (such as PDF417) can store approximately 1100 bytes of data per square inch. As such, the 2-D bar code has sufficient storage density to store the necessary feature data on an access card the size of an ATM card or an employee badge, which is desirable for portability.

A274-01.wpd

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